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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,168	03/29/2001	Stefan Pleisch	CH20000077	4016

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EXAMINER

ZHONG, CHAD

ART UNIT PAPER NUMBER

2152

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 09/821,168	Applicant(s) PLEISCH ET AL.	
	Examiner Chad Zhong	Art Unit 2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
6) <input type="checkbox"/> Other: _____ |
|---|--|

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FINAL ACTION

1. Applicant's arguments, see pages 8-13 of applicant's remarks, filed 12/15/2005, with respect to the rejection(s) of claim(s) 1-18 under 35 USC 102(e) and 35 USC 103(a) have been fully considered and are found not persuasive. Therefore, the rejection has been maintained. Claims 1-18 are presented for examination; claims 1, 5, 6, 10, and 12 are amended; claim 4 is cancelled.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 10, 14, 15, and 17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. 'a computer program product', 'program code means' are non-statutory subject matter, they are not operating within a tangible medium, appropriate correction is required.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rothermel et al. (hereinafter Rothermel) "A Fault-Tolerant Protocol for Providing the Exactly-Once Property of Mobile Agents", 1998.

6. As per claim 1, Rothermel teaches a method of operating a mobile agent (Fig 2, item S1, S2, wherein the S1 and S2 are mobile agent stages) that travels through a network of a number of computers, wherein the mobile agent is executed in a sequence of stages (Fig 2) and wherein each

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stage comprises a set of places (each node is fully capable of receiving multiple incoming processes, see for example, Fig 2, Fig 3 there are plurality of processes/put going from stage 1 to stage 2), the method comprising the following steps:

executing the mobile agent in at least one of the set of places of a respective one of the stages (Fig 2, places are nodes 1-5 in stage S_1 and 1-3 in S_2),

evaluating (abort is not triggered, and put is performed) in which place (Fig 2, nodes 1 through 5) of the respective stage the mobile agent has been executed successfully (Fig 3, wherein a successful execution entails going from S_i to S_{i+1}),

agreeing on a primary place (priority of worker node; Fig 2 and 3, node 1 in stage S_1 would be a primary place amongst other places) among the set of places (pg 3, Col. 1, lines 1-25; Col. 2, lines 25-32),

aborting and/or undoing any operation in connection with the mobile agent in any other place of the respective stage (pg 2, 3rd paragraph; pg 3, Col. 2, lines 25-32),

moving a modified mobile agent resulting from the successful execution to the next stage (Fig 3, the agent is moved to next stage S_{i+1} .) to at least two forwarding places (pg 3, Col. 2, lines 28-35, wherein plurality of places are involved in determining which of the forwarding places would send the data to the next stage), and

generating a decision in each stage, the decision including primary place that corresponds to the place in which the mobile agent has executed successfully (pg 3, Col. 1, lines 1-15, lines 35-40, lines 45-50, where within a particular stage other than N_k , a node with priority, i.e. initial worker will execute the agent, i.e. *Execute(Agent)*), the set of places of the next stage to which the modified mobile agent is moved (Fig 2, wherein S_2 is the next set of places; similarly, Fig 3, set S_{i+1} provides a set of places the information is moved to; pg 3, Col. 1, lines 35-40 further provide support for a set of places/nodes the information is moved to; pg 3, Col. 1, lines 45-50,

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i.e. *put(Agent) to (AllNodesOfNextStage)*), and the resulting modified mobile agent (pg 3, Col. 1, lines 45-50, where the execution of the agent results in modified mobile agent).

5. As per claim 2, Rothermel teaches the steps are repeated for any one of the sequence of stages (see for example, Fig 3; pg 3, Col. 2, lines 40-45).

6. As per claim 3, Rothermel teaches the mobile agent is executed sequentially in the set of places of the respective stage (Fig 3, going from stage S_i to S_{i+1}), and wherein the mobile agent is not executed anymore in subsequent places after successful execution in one of the set of places and agreement on this successful execution (pg 3, Col. 2, lines 25-33).

7. As per claim 5, Rothermel teaches at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is confirmed to at least all other places of the respective stage except the primary place (Fig 2, wherein each item in stage S_2 are capable of executing the process, but only one item is committed at a time to the process).

8. As per claim 6, Rothermel teaches at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is moved to all places of the next stage (Fig 2).

9. As per claim 7, Rothermel teaches the move is performed as a reliable forward function (pg 3, Col. 1, lines 1-15, wherein if there is a failure, another agent will take over, thus providing reliability).

10. As per claim 8, Rothermel teaches the steps are managed by a fault-tolerance enabler (FTE) (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process) which is independent of the

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mobile agent (Fig 4).

11. As per claim 9, Rothermel teaches the FTE travels with the mobile agent to the set of places of the respective stage (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process, furthermore, each stage will require a voting process to determine the committing node).

12. As per claim 10, Claim 10 is rejected for the same reasons as rejection to claim 1 above.

13. As per claim 11, Rothermel teaches the program code means is stored on a computer-readable medium (Fig 3, wherein stages has the ability to store software programs inherently).

14. As per claim 12, Claim 12 is rejected for the same reasons as rejection to claim 1 above.

15. As per claim 13, Rothermel teaches wherein the mobile agent is a computer program that acts autonomously on behalf of an agent owner or user and that travels through a network of a number of computers (it should be noted that observer nodes automatically decided upon themselves through a voting protocol, which node will be the primary node. The primary node is then carrying the information to the next stage, see Col. 2, lines 25-35; Fig 3).

16. As per claim 14-15, the claims are rejected for the same reasons as rejection to claim 13 above.

17. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

18. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothermel et al. (hereinafter Rothermel) "A Fault-Tolerant Protocol for Providing the Exactly-Once Property of Mobile Agents", 1998, in view of Greenberg et al. (hereinafter Greenberg), "Mobile Agents and Security", July 1998, IEEE Communications Magazine.

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19. As per claim 16, Rothermel does not explicitly teach non-primary places are configured to verify the modified mobile agent has successfully arrived at the set of places of the next stage to which the modified mobile agent is moved.

In a similar system, Greenberg teaches the concept of verification of codes and/or agents going to the next stage are error free. Specifically, the errors are in the form of malicious programs, and a separate entity in the form of “security manager” or equivalent will then verify the contents going into the next stage in a mobile agent system (pg 6, lines 25-45).

It would have been obvious to the person of ordinary skill in the art at the time of the invention to incorporate Greenberg with Rothermel because having a separate verification entity to verify the content of the message going into the next stage in a mobile agent system as taught by Greenberg would enhance the security and fault tolerant aspect of Rothermel by verifying the content for successful arrival at the destination (Greenberg, pg 6, lines 25-45, where the monitoring is done to verify correctness of the content).

20. As per claim 17-18, the claims are rejected for the same reasons as rejection to claim 16 above.

Response to Arguments

21. Applicant's remarks filed 12/15/2005 have been considered but are found not persuasive in view at the new grounds at rejection necessitated by Applicant's amendment.

22. In the remark, the Applicant argued in substance that unlike Rothermel, the current invention requires that the modified mobile agent be moved to the next stage by at least two forwarding places.

In response to Applicant's remarks, it is not clearly understood how it is possible to agreeing on a primary place and aborting and/or undoing any operation in connection with the mobile agent in any other place of the respective stage and then moving a modified mobile agent resulting from the successful execution to the next stage from at least two forwarding places. These two limitations contradict each other, thus rendering the claims indefinite. For the purpose of examination, the Examiner will interpret "from at least two forwarding places" as "involving at least two forwarding places". Following the above concept, on pg 3, Col. 2, lines 28-35, Rothermel discloses plurality of places are involved in determining which of the forwarding places would send the data to the next stage.

23. In the remark, the Applicant argued in substance that claim 1 requires the generated decision to include three items of information.

In response to Applicant's arguments, Rothermel teaches generating a decision in each stage, the decision including primary place that corresponds to the place in which the mobile agent has executed successfully (pg 3, Col. 1, lines 1-15; Fig 2), the set of places of the next stage to which the modified mobile agent is moved (Fig 2, wherein S_2 is the next set of places; similarly, Fig 3, set S_{i+1} provides a set of places the information is moved to; pg 3, Col. 1, lines 35-40 further provide support for a set of places/nodes the information is moved to), and the resulting modified mobile agent (pg 3, Col. 1, lines 45-50, where the execution of the agent results in modified mobile agent).

24. In the remark, Applicant argued in substance that Rothermel – Green does not teach non primary places are configured to verify the modified mobile agent has successfully arrived at the set of places of the next stage to which the modified mobile agent is moved.

In response to applicant's arguments, Rothermel – Green teaches verification technique to ensure proper contents are sent from sender to destination, providing a way of checking the

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integrity of the contents, this is taught in Green pg 6, lines 25-27. Therefore, Green teaches the limitation as claimed.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reined of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents and publications are cited to further show the state of the art with respect to "a FAULT-TOLERANT MOBILE AGENT FOR A COMPUTER NETWORK".

- i. "A Secure Active Network Environment Architecture: Realization in SwitchWare", Alexander et al. 1998

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Zhong whose telephone number is (571)272-3946. The examiner can normally be reached on M-F 7:15 to 4:30.

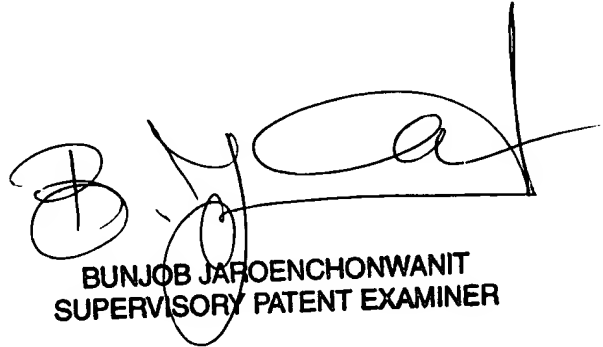
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAROENCHONWANIT, BUNJOB can be reached on (571)272-3913. The fax

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phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CZ
February 21, 2006



BUNJOB JAFONCHONWANIT
SUPERVISORY PATENT EXAMINER